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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|----------------------------------|
| 09/757,446 | 01/09/2001 | Lanshi Zheng | S01.12-0669 | 8134 |
| 7590 | 08/10/2004 | | | EXAMINER MAGEE, CHRISTOPHER R |
| Westman Champlin & Kelly 900 Second Avenue South Suite 1600 International Centre Minneapolis, MN 55402-3319 | | | ART UNIT 2653 | PAPER NUMBER |

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|------------------------------|------------------------|---------------------|
| | 09/757,446 | ZHENG ET AL. |
| | Examiner | Art Unit |
| | Christopher R. Magee | 2653 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 April 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,13 and 20 is/are rejected.

7) Claim(s) 2-12 and 20 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 09 January 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2 and 6.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-13 and 20, in the reply filed on 4/23/2004 is acknowledged.
2. Claims 14-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/23/2004.

Claim Objections

3. Claim 20 is objected to because of the following informalities: In claim 20, line 6, remove "or increasing". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 13 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Brand et al. (hereinafter Brand) (US 5,853,959).
 - Regarding claims 1 and 13, Brand discloses a method of contouring a surface of a slider for supporting a transducer relative to a data storage medium, the method comprising:
 - (a) applying a lithographic resist layer to the slider surface (col. 3, lines 21-23);

- (b) exposing the resist layer through a single mask having a mask pattern defined by variation in an optical density through the mask, wherein the resist layer is exposed in an exposure pattern corresponding to the mask pattern (col. 3, lines 37-51);
- (c) removing portions of the resist layer as a function of the exposure pattern to produce a vertically contoured resist layer (col. 3, lines 52-60); and
- (d) etching the slider surface through the vertically contoured resist layer during a single etching step to form a vertically contoured surface feature within the slider surface (col. 3, lines 61-66).

- Regarding claim 20, Brand teaches a slider fabrication apparatus (col. 3, lines 25-36) comprising:
 - a slider having a bearing surface with a resist layer formed thereon (col. 3, lines 21-23); and
 - lithographic mask means for exposing the resist layer as a function of a pattern defined by an optical density through the lithographic mask means and for creating a progressively increasing or decreasing exposure level along at least one portion of the resist layer (col. 3, lines 37-51).

Allowable Subject Matter

5. Claims 2-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. Shahar et al. (US 4,938,841) is cited to show a two level lithographic mask for producing tapered depth.
- b. Rolson (US 5,851,701) is cited to show an atom lithographic mask having diffraction grating and attenuated phase shifters.
- c. Block et al. (US 6,033,766) is cited to show a gray scale mask and depth pattern transfer technique using inorganic chalcogenide glass.
- d. Lee et al. (US 6,537,222 B2) is cited to show a method for fabricating continuous space variant attenuating lithography mask for fabrication of devices with three dimensional structures and microelectronics.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (703) 605-4256. The examiner can normally be reached on M-F, 8: 00 am-5: 30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher R. Magee
Patent Examiner
Art Unit 2653

August 9, 2004



GEORGE J. LETSCHER
PRIMARY EXAMINER